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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,225	02/07/2002	Wei-Wei Zhuang	SLA 0622	3317
7590	10/09/2003		EXAMINER	
David C. Ripma, Patent Counsel Sharp Laboratories of America, Inc. 5750 NW Pacific Rim Boulevard Camas, WA 98607			PERT, EVAN T	
			ART UNIT	PAPER NUMBER
			2829	
DATE MAILED: 10/09/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Offic _ Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/072,225	ZHUANG ET AL.	
	Examiner Evan Pert	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period f r Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 February 2002.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-3,8 and 9 is/are allowed.
- 6) Claim(s) 23-29 is/are rejected.
- 7) Claim(s) 4-7 and 10-22 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 February 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>0202</u> . | 6) <input type="checkbox"/> Other: _____ .                                   |

## DETAILED ACTION

### *Drawings*

1. The drawings appear to be informal; text of figures 2 through 4 is too small (wherein at least 1/8 inch height required per 37 CFR 1.84) and handwritten numerals are informal on figure 1. Applicant should submit compliant formal drawings in preparation for allowance.

### *Specification*

2. The disclosure is objected to because of the following informalities:
    - At p. 2, line 16, "various pulse length" should read --various pulse lengths--.
    - At p. 4, line 19, "fabrication" should read --fabricated --.
    - At p. 5, line 18, "shallow mask" should read --shadow mask--.
    - At p. 5, line 22, "if integrated" should read --of integrated--.
    - At p. 6, line 5, "Sm Y," should read --Sm, Y--.
    - At p. 6, line 19, "obtained form" should read --obtained from--.
    - At p. 7, line 20, "as following" should read --as decreases following-- (wherein decreases is clearly evident from the entire disclosure).
      - At p. 8, line 3, "enable" should read --enables--.
      - At p. 8, line 6, "by at low" should read --at low --.
      - At p. 8, line 8, "stat-of-the-art" should read --state-of-the-art --.
      - At p. 8, line 9, "electrical pulse of the same" should read --electrical pulses of the same--.
- Appropriate correction is required.

***Claim Objections***

3. Claims 4, 5, 7, 12, 13, 15, 16 and 19-25 are objected to because of the following informalities:

"Sm Y" should have a comma in claims 4, 12, 19 and 24.

In claims 5, 13, 20 and 25, line 2, "pulse" should read --pulses--.

In claim 7 (line 1), claim 15 (line 1) and claim 21 (line 4), "if the completed device" should read --of the completed device--.

In claim 16 (line 3) and claim 22 (line 3), "have" should read --having--.

In claim 23, line 8, "to produce a complete device" should read --that form the variable resistance R-RAM device-- (or an equivalent).

In claims 10 and 18, line 2, "the surface thereof" should read --a surface thereof-- (since it is overly restrictive to require the entire wafer to be covered on its sides, front and back).

Appropriate correction is required.

***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 23-29 are provisionally rejected under the judicially created doctrine of double patenting over claim 4 of copending Application No. 10/256,358 (US 2003/0156445 A1). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

Conflicting scope is apparent, for example, comparing claim 24 of the instant case with claim 7 of 10/256,358, wherein claim 7 recites all device limitations of the instant claim 24, in a method of programming having additional limitations.

***Allowable Subject Matter***

5. Claims 6 and 11 are objected to for depending on objectionable claims, but are otherwise allowable.
6. Claims 4-5, 7, 10 and 12-22 are objected to for various typographical and grammatical informalities, but are otherwise allowable.
7. Claims 23-29 are provisionally rejected and claims 23-25 are also objected to for informalities, but these claims are otherwise allowable presuming the proper filing of a Terminal Disclaimer by applicant.
8. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to disclose the methodology for forming a *variable resistance device* particularly characterized by the formation of underlying oxide on a silicon substrate with overlying platinum or iridium first and second metal layers having a perovskite metal oxide between the first and second metal layers, and annealing.

Note on Antecedent Basis

The claims recite "the resistance" and "the structure" wherein antecedent basis for these definitive articles is understood as "the resistance" measured between first and second metal layers of the completed device and "the structure" is an intermediate structure resultant from previously performed steps of preparing, forming and depositing.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2003/0148546 A1, 2003/0142578 A1, US 6,569,745 B2, US 6,531,371 B2, US 2003/0001178 A1, US 2003/0003675 A1 and US 2003/003674 A1, commonly assigned to the assignee of the instant case, are cited as related cases disclosing subject matter related to memory devices based on resistive elements of perovskite metal oxide.

US 6,606,261 B2 and US 2002/0027794 A1 are cited for disclosing memory devices based on resistance changes in perovskite, but these references disclose subject matter relating to programming with polarity of pulses, not duration of pulses.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 703-306-5689. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 703-308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

ETP  
September 25, 2003

  
**EVAN PERT**  
**PRIMARY EXAMINER**